CLAIMS

1. An apparatus for controlling the load on articular cartilage of a human or animal joint comprising:

a first fixation assembly for attachment to a first bone;

a second fixation assembly for attachment to a second bone; and

a link assembly coupled to the first fixation assembly by a first pivot and coupled to the second fixation assembly by a second pivot,

the first and second fixation assembly thereby each being angularly displaceable relative to the link assembly.

2. The apparatus according to claim 1 in which the first fixation assembly includes at least one pin for engaging with a first bone.

3. The apparatus according to claim 2 in which the first fixation assembly includes a clamp for mounting a plurality of pins each for engaging with a first bone, said plurality of pins being spaced along the length of the first fixation assembly.

4. The apparatus of claim 1 in which the first fixation assembly includes engagement means for engaging at least one bone pin, the engagement means being rotatable about a longitudinal axis of the first fixation assembly.

5. The apparatus of claim 1 in which the first fixation assembly includes engagement means for engaging at least one bone pin, the engagement means being rotatable about a transverse axis of the first fixation assembly.

6. The apparatus of claim 1 in which the first fixation assembly includes engagement means for engaging at least one bone pin, the engagement

means being independently rotatable about a longitudinal axis and a transverse axis of the first fixation assembly

7. The apparatus according to any preceding claim in which the first fixation assembly is coupled to the link assembly by way of a first pivot having one degree of rotational freedom.

8. The apparatus according to any one of claims 1 to 6 in which the first fixation assembly is coupled to the link assembly by way of a first pivot having two degrees of rotational freedom.

9. The apparatus according to any preceding claim in which the link assembly includes a fixed separation member for maintaining said first and second pivots at a fixed distance of separation.

10. The apparatus according to any preceding claim in which the link assembly includes a variable separation member for permitting the first and second pivots to vary in their distance of separation within predetermined limits.

11. The apparatus according to claim 10 in which the variable separation member includes bias means for biasing the first and second pivots towards a maximum limit of separation distance.

12. The apparatus according to claim 10 in which the variable separation member includes bias means for biasing the first and second pivots towards a minimum limit of separation distance.

13. The apparatus according to claim 10 in which the variable separation member includes bias means for biasing the first and second pivots towards an intermediate distance of separation between said predetermined limits.

14. The apparatus according to any preceding claim further including means for limiting the angular displacement of the first fixation assembly relative to the link assembly and/or means for limiting the angular displacement of the second fixation assembly relative to the link assembly.

15. The apparatus according to any preceding claim further including means for varying separation of the first fixation assembly and the second fixation assembly as a function of the angular displacement of either fixation assembly relative to the link assembly.

16. The apparatus according to any preceding claim further including a drive member coupled to the first fixation assembly and to the second fixation assembly for controllably varying the angular displacement of the first and second fixation assemblies relative to one another.

17. The apparatus according to claim 10 in which the variable separation member further includes drive means for controllably varying the distance of separation of the first and second pivots.

18. The apparatus according to any preceding claim further including a sensor adapted to monitor the load applied across the link assembly.

19. The apparatus according to claim 18 in which the sensor is adapted to monitor any one of the tensile load, compression load, shear forces or bending forces applied across the link assembly.

20. The apparatus according to claim 19 in which the sensor comprises a strain gauge.

21. The apparatus according to any one of claims 1 to 8 comprising a pair of link assemblies each pivotally anchored to both the first and second fixation assemblies 11, 12 and laterally displaced from one another.

22. The apparatus according to claim 21 in which the pair of link assemblies comprise a first link member and a second link member that are laterally and angularly displaced from one another.

23. The apparatus according to claim 22 in which the first link member and the second link members are disposed in a crosswise formation.

24. The apparatus according to claim 1 further including a second corresponding apparatus for coupling thereto by a plurality of bone pins.

25. Apparatus substantially as described herein with reference to the accompanying drawings.

26. A method of controlling loading on a joint comprising the steps of:

attaching a first fixation assembly to a first bone;

attaching a second fixation assembly to a second bone, the second bone being connected to the second bone by an articulating joint;

coupling said first fixation assembly and said second fixation assembly by way of a link assembly so that said first fixation assembly and said second fixation assembly are each angularly displaceable relative to the link assembly.

27. The method according to claim 26 further comprising attaching one or both of said fixation assemblies to their respective bones such that the respective bone is rotatable about a longitudinal axis of the fixation assembly.

28. The method according to claim 26 further comprising attaching one or both of said fixation assemblies to their respective bones such that the respective bone is rotatable about a transverse axis of the fixation assembly.

29. The method according to claim 26 in which the angular displacement permitted between the first fixation assembly and the link assembly and/or between the second fixation assembly and the link assembly respectively comprise one degree of rotational freedom.

30. The method according to claim 26 in which the angular displacement permitted between the first fixation assembly and the link assembly and/or between the second fixation assembly and the link assembly respectively comprise two degrees of rotational freedom.

31. The method according to any one of claims 26 to 30 further including the step of adjusting a distance of separation of said first and second fixation assemblies to adjust the loading on the joint.

32. The method according to any one of claims 26 to 31 further comprising the step of limiting the permitted angular displacement of the first fixation assembly relative to the link assembly and/or limiting the angular displacement of the second fixation assembly relative to the link assembly.

33. The method according to any one of claims 26 to 32 further including the step of varying the angular displacement of the first and second fixation assemblies relative to one another by a powered mechanical drive mechanism.

34. The method according to any one of claims 26 to 33 further including the step of deploying a sensor to record load applied across the link assembly.